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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,791	03/08/2001	Nicholas F. Borrelli	SP00-139	8335
7590	03/25/2004		EXAMINER KAO, CHIH CHENG G	
Svetlana Short Corning Incorporated SP-TI-3-1 Corning, NY 14831			ART UNIT 2882	PAPER NUMBER

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/802,791	<b>Applicant(s)</b> BORRELLI ET AL.	
	<b>Examiner</b> Chih-Cheng Glen Kao	<b>Art Unit</b> 2882	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. The proposed drawings filed on 1/13/03 have been approved. However, new corrected replacement drawings are still required in this application. The corrected replacement drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

### ***Claim Objections***

2. Claim 8 is objected to because of the following informality, which appears to be a minor draft error: "Tm, or Dy, Er" in line 2. This objection may be obviated by placing "or" before "Er" instead of "Dy". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 5, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al. ("New transparent vitroceraamics codoped with Er<sup>3+</sup> and Yb<sup>3+</sup> for efficient frequency upconversion").

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4. Regarding claim 1, Wang et al. discloses a glass-ceramic rare earth doped (Title) fiber (Page 3270, col. 2, last 2 lines of last paragraph) wherein at least 90% of the rare earth dopant is situated within crystallites (Page 3270, col. 1, second half of second paragraph).
5. Regarding claims 2 and 3, Wang et al. further discloses the crystallites 100nm or smaller (Page 3268, col. 2, last 3 lines).
6. Regarding claim 5, Wang et al. would necessarily have stimulated emission and absorption line shapes narrower than its precursor rare earth doped glass (Fig. 5), since the dopants within the crystallites would produce less scattering and thus sharper stimulated emission and absorption lines compared to dopants outside the crystallites.
7. Regarding claim 6, Wang et al. further discloses the rare earth dopant as Pr, Er, Tm, or Dy, where dopant level is greater than 100ppm (Page 3268, col. 2, lines 4-5).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. as applied to claim 1 above, and further in view of Borrelli et al. (US Patent 5537505).

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Wang et al. discloses a device as recited above.

However, Wang et al. does not specifically disclose crystallites 10nm or smaller.

Borrelli et al. teaches crystallites 10nm or smaller (col. 5, lines 18-20).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Wang et al. with the crystallite size of Borrelli et al., since one would be motivated to incorporate this to minimize scattering loss (col. 2, lines 35-36) as implied from Borrelli et al.

9. Claims 7-12 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borrelli et al. (US Patent 5537505) in view of Wang et al. and Ainslie et al. (US Patent 4936650).

10. Regarding claim 7, Borrelli et al. discloses an optical amplifier (Abstract, last line) comprising a glass-ceramic rare earth doped fiber (Abstract, last 4 lines).

However, Borrelli et al. does not seem to specifically disclose an optical amplifier with an input, a length of fiber, including at least 90% of rare earth dopant in crystallites, coupled to the input and optical pump, an output, and an optical component between the input and output.

Wang et al. teaches at least 90% of rare earth dopant in crystallites (Page 3270, col. 1, second half of second paragraph). Ainslie et al. discloses an optical amplifier (Abstract, lines 1-2) comprising an input (Fig. 3, #33), a length of fiber coupled to the input (Fig. 3, #30) and optical pump (Fig. 3, #34), an output (Fig. 3, #35), and an optical component between the input and output (Fig. 3, #37).

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It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the device of Borrelli et al. with the dopant in crystallites of Wang et al., since one would be motivated to incorporate this for greater intensity outputs through the device (Figs. 4 and 5) as implied from Wang et al.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Borrelli et al. with amplifier of Ainslie et al., since one would be motivated to incorporate this as a means for better amplification of signals across optical telecommunication systems (col. 1, lines 8-12) as implied from Ainslie et al.

11. Regarding claim 8, Borrelli et al. further discloses the dopant as Pr, Nd, Tm, Dy, or Er (Abstract).

12. Regarding claims 9 and 10, Borrelli et al. further discloses the crystallites as 100nm or smaller (col. 5, lines 18-20).

13. Regarding claims 11 and 12, Borrelli et al. in view of Wang et al. and Ainslie et al. suggests a device as recited above.

However, Borrelli et al. does not seem to specifically disclose essentially all dopant in the microcrystalline phase and none in the surrounding glass.

Wang et al. teaches essentially all dopant in the microcrystalline phase and none in the surrounding glass (Page 3270, col. 1, second half of second paragraph).

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It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further have the device of Borrelli et al. with the dopant in crystallites of Wang et al., since one would be motivated to incorporate this for greater intensity outputs through the device (Figs. 4 and 5) as implied from Wang et al.

14. Regarding claims 14 and 15, Borrelli et al. would necessarily have stimulated emission and absorption line shapes narrower than its precursor or similarly rare earth doped glass (col. 1, lines 66-67), which is further implied and supported (Fig. 5) by Wang et al, since the dopants within the crystallites would produce less scattering and thus sharper stimulated emission and absorption lines compared to dopants outside the crystallites.

15. Regarding claim 16, Borrelli et al. would necessarily have absorption peaks in the 1320 to 1360 range narrower than that of its precursor rare earth doped glass (col. 2, lines 56-59), as further implied and supported (Fig. 5) by Wang et al.

16. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Borrelli et al. in view of Wang et al. and Ainslie et al. as applied to claim 7 above, and further in view of Arima (US Patent 6217204).

Borrelli et al. in view of Wang et al. and Ainslie et al. suggests a device as recited above.

However, Borrelli et al. does not disclose a filter.

Arima teaches a filter (Fig. 1, #10).

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It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the suggested device of Borrelli et al. in view of Wang et al. and Ainslie et al. with the filter of Arima, since one would be motivated to incorporate it to reduce noise as shown by Arima (col. 1, lines 61-67).

17. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Borrelli et al. in view of Wang et al. and Ainslie et al. as applied to claim 7 above, and further in view of Ohara et al. (US Patent 6197710).

Borrelli et al. in view of Wang et al. and Ainslie et al. suggest a device as recited above. Borrelli et al. would further necessarily have an ESA shift in the 1320 nm to 1360 nm range, which is further implied and supported (Fig. 2) by Wang et al.

However, Borrelli et al. does not disclose an Nd dopant.

Ohara et al. teaches an Nd dopant (col. 9, lines 12-20).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the suggested device of Borrelli et al. in view of Wang et al. and Ainslie et al. with the Nd dopant of Ohara et al., since Nd, Er, and Dy, as well as other dopants are considered art-recognized equivalents in that they are routinely used in glass-ceramics (col. 9, lines 12-15). It would have been within ordinary skill in the art to substitute one for the other depending upon the desired emission property of the waveguide.



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***Response to Arguments***

18. Applicant's arguments with respect to claim 1-17 have been considered but are moot in view of the new ground(s) of rejection.

Ainslie et al. still applies for its teaching of an optical amplifier. Arima still applies for its teaching of a filter.

***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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